

STATE OF VERMONT  
PUBLIC SERVICE BOARD

Docket No. 7570

Petition of PurposeEnergy, Inc. for a certificate )  
of public good, pursuant to 30 V.S.A. Section )  
248(j), authorizing the construction, installation )  
and operation of a cogeneration facility at the )  
site of the Independent Brewers United )  
Corporation, d/b/a Magic Hat Brewing )  
Company, brewery located at 5 Bartlett Bay )  
Road in South Burlington, Vermont )

Order entered: 12/31/2009

**I. INTRODUCTION**

This case involves a petition filed on September 8, 2009, by PurposeEnergy, Inc. ("PurposeEnergy") requesting a certificate of public good under 30 V.S.A. § 248(j) authorizing the installation and operation of a cogeneration facility in South Burlington, Vermont.

Notice of the filing was sent on November 9, 2009, to all entities specified in 30 V.S.A. § 248(a)(4)(c) and all other interested parties. The notice stated that any party wishing to submit comments as to whether the petition raises a significant issue with respect to the substantive criteria of 30 V.S.A. § 248 needed to file comments with the Board on or before December 10, 2009. A similar notice of the filing was published in *The Burlington Free Press* on November 12 and 19, 2009.

On December 11, 2009, the Vermont Department of Public Service filed a letter stating that the proposed project is consistent with the *Vermont Electric Plan*, pursuant to 30 V.S.A. § 202(f).

No other comments on the petition were filed.

The Board has determined that the proposed construction will be of limited size and scope and that the petition has effectively addressed the issues raised with respect to the

substantive criteria of 30 V.S.A. § 248. Consequently, we find that the procedures authorized by Section 248(j) are sufficient to satisfy the public interest, and no hearings are required.

## **II. FINDINGS**

1. PurposeEnergy is a Delaware corporation formed for the purpose of developing and implementing waste-to-energy solutions for the beer brewing industry. Fitch pf. at 1.
2. PurposeEnergy has entered into an agreement with Independent Brewers United Corporation, d/b/a Magic Hat Brewing Company ("Magic Hat"), to build and operate a facility on the site of the Magic Hat brewery in South Burlington, Vermont, that will convert byproducts of the brewing process to biogas and electricity. Fitch pf. at 1-2.
3. The Project will utilize an anaerobic digestion process to convert solid and liquid brewery byproducts to biogas. Magic Hat will use a portion of the biogas as a substitute for the natural gas currently used in the brewing process. The remainder of the biogas will be used to fire a 330 kW Guasacor cogeneration unit that produces electricity and heat. The heat will be used to preheat the water supply to the brewery. Fitch pf. at 2.
4. Any surplus biogas produced while the cogeneration unit is not in operation will be combusted by a U.S. Environmental Protection Agency-approved flare. Fitch pf. at 2.
5. The anaerobic digester included in the Project will also serve as a wastewater pretreatment system for the brewery, reducing the biochemical oxygen demand ("BOD") of wastewater discharged to the South Burlington Bartlett Bay Wastewater Treatment Facility under Magic Hat's municipal and state discharge permits. The brewery's growth is currently constrained by the limitations on its BOD discharge under its South Burlington wastewater discharge permit. The Project's wastewater pretreatment function will allow the brewery to expand from just over 50% of its potential production to 100% of its production capacity. Fitch pf. at 2; Hood pf. at 1.
6. The amount of heat and electricity the Project generates will depend on the brewery's level of production. PurposeEnergy anticipates that, in 2010, the Project will deliver 11,943 mmBTU per year of heat to the brewery and 888,190 kWh per year of electricity, with a peak electrical capacity of 132 kW. When the brewery reaches its peak production, the Project will

produce 51,760 mmBTU per year of heat and 284,850 kWh per year of electricity, with a peak electrical capacity of 325 kW. As the brewery production increases, the brewery will potentially consume a more significant portion of the biogas that would otherwise be used to generate electricity. Fitch pf. at 8-11.

7. PurposeEnergy will build the Project behind the brewery on a 5.22 acre parcel leased by Magic Hat. PurposeEnergy will sublease the Project site from Magic Hat. The sublease term runs through 2016 and PurposeEnergy has the option to renew for two additional five-year terms. Fitch pf. at 3-4.

8. The Project will include: (1) a 16,000 to 20,000 gallon influent control tank; (2) two primary anaerobic digester tanks, each of which will be 50 feet in diameter and 34 feet high and hold approximately 500,000 gallons; (3) a 1,500 square-foot building that will house a control center, laboratory space, and dewatering and pump rooms; (4) the cogeneration unit, which will be packaged in an 8-foot wide, 19-foot long, 8.5-foot tall thermally and noise-insulated International Organization for Standardization ("ISO") container; and (5) a secondary wastewater treatment system that will further reduce the BOD of effluent discharged from the primary digesters. Fitch pf. at 4-5; exh. PE-EF-06.

9. Construction materials and equipment will be delivered to the Project site by truck. The assembled cogeneration unit will be hoisted from a truck onto its foundation by a crane. Fitch pf. at 6.

10. The total coverage of the facility will be approximately 5,800 square feet, of which about 2,875 square feet will be new impervious surface, as a large portion of the facility will be constructed over existing pavement. Fitch pf. at 5.

### **Orderly Development of the Region**

[30 V.S.A. § 248(b)(1)]

11. The Project will not unduly interfere with the orderly development of the region, with due consideration having been given to the recommendations of the municipal and regional planning commissions, the recommendations of municipal legislative bodies, and the land

conservation measures contained in the plan of any affected municipality. This finding is supported by findings 12 through 14, below.

12. PurposeEnergy has obtained all site plan approvals and zoning permits from South Burlington that would otherwise be required if the Project was not reviewed under Section 248. Additionally, the South Burlington Planning Commission and the Chittenden County Regional Planning Commission have waived the 45-day notice period required by Section 248(f). Fitch pf. at 7-8; exhs. PE-MW-02-06, PE-EF-08, and PE-EF-09.

13. The Project is sited in an area that the 2006 Chittenden Regional Plan designates as a Metropolitan Planning Area "intended to be [a] regional or subregional center[ ] for jobs, housing and community facilities and have an urbanized character." Wamsganz pf. at 5; exh. PE-MW-12.

14. The Project is consistent with the Regional Plan's statement of Energy Policies, which stresses the "major drawbacks" of nonrenewable energy sources and the importance of supplying a larger share of the Region's energy needs with renewable sources. Wamsganz pf. at 5; exh. PE-MW-12.

### **Need for Present and Future Demand for Service**

[30 V.S.A. § 248(b)(2)]

15. The Project is a qualifying SPEED facility and no part of the Project is financed directly or indirectly through investments, other than power contracts, backed by Vermont electricity ratepayers. Letter of December 31, 2009, from Brian S. Dunkiel, Esq., to Susan M. Hudson, Clerk of the Board.

### **Discussion**

Pursuant to 30 V.S.A. § 8005(b)(8):

a demonstration of compliance with subdivision 248(b)(2) of this title, relating to establishing need for the facility, shall not be required if the facility is a SPEED resource and if no part of the facility is financed directly or indirectly through investments, other than power contracts, backed by Vermont electricity ratepayers.

Accordingly, PurposeEnergy does not need to demonstrate compliance with this criteria.

**System Stability and Reliability**

[30 V.S.A. § 248(b)(3)]

16. The Project will not adversely affect system stability and reliability. This finding is supported by findings 17 and 18, below.

17. The Project can meet all necessary standards of stability and reliability and will not adversely affect system stability and reliability, provided that PurposeEnergy complies with the following actions recommended in the System Impact Study:

- a. Work with Green Mountain Power Corporation ("GMP") to conduct a complete coordination study on the GMP distribution system and the Project generating system to allow proper setting of the generator relays and the distribution circuit reclosers and fusing;
- b. Install #50 instantaneous overcurrent relays in the generator controls;
- c. Install a 500 kVA, 12,470 volt wye/480 volt delta transformer as a dedicated generator step-up transformer;
- d. Install a three-phase recloser with external, visible disconnects to provide a visual, lockable open point for line maintenance;
- e. Install systems that will allow remote monitoring of Project status and power output to ensure that power output does not exceed 330 kW;
- f. Arrange for inspection of the Project by a State Electrical Inspector to assure its compliance with the National Electric Code, and submit the results of this inspection to the Board; and
- g. Complete the testing required by IEEE 1547, Section 5, Appendix F, and provide the test results to GMP and the Board.

Crocket pf. at 2; exh. PE-DC-02 at 5-15.

18. PurposeEnergy will build, operate, and maintain the Project in compliance with the conditions described in the System Impact Study. Fitch pf. at 19.

**Economic Benefit to the State**

[30 V.S.A. § 248(b)(4)]

19. The Project will result in an economic benefit to the state and its residents. This finding is supported by findings 20 through 24, below.

20. The Project will create thirty full-time temporary jobs during the construction phase. Fitch pf. at 11.

21. PurposeEnergy will permanently employ six part-time people in Vermont to operate the Project. Fitch pf. at 11.

22. The Project's service as a pretreatment facility for Magic Hat will enable the brewery to expand production, increasing its skilled workforce by 30-40 full-time permanent employees and increasing its taxable product by almost a factor of two. Hood pf. at 1.

23. The Project will reduce the brewery's operating costs, conferring a competitive advantage to its Vermont-manufactured product. Hood pf. at 2.

24. The estimated cost of Project construction is \$4 million and the revenue stream will be in the range of \$700,000 per year. This will generate tens of thousands of dollars in real property taxes, based on the income method of valuation. Fitch pf. at 11.

**Aesthetics, Historic Sites, Air and Water Purity,**  
**the Natural Environment and Public Health and Safety**

[30 V.S.A. § 248(b)(5)]

25. The Project will not have an undue adverse effect on aesthetics, historic sites, air and water purity, the natural environment and public health and safety. This finding is supported by findings 26 through 59, below, which are the criteria specified in 10 V.S.A. §§ 1424(a)(d) and 6086(a)(1)-(8)(a) and (9)(k).

**Outstanding Resource Waters**

[10 V.S.A. § 1424(a)(d)]

26. The Project is not located on or near any outstanding resource waters. Wamsganz pf. at 3.

**Water and Air Pollution**

[10 V.S.A. § 6086(a)(1)]

27. The Project will not result in undue water or air pollution. This finding is supported by findings 28 through 43, below.

28. Project operations will generate minimal air pollutants and will reduce emissions of some air pollutants. Fitch pf. at 11-12.

29. The Vermont Agency of Natural Resources ("ANR") has determined that the Project will not require an air pollution control permit, provided that it is designed and operated in compliance with five conditions specified in ANR's determination letter, dated July 21, 2009. PurposeEnergy will comply with the five ANR conditions. Fitch pf. at 12; exh. PE-EF-11.

30. Use of the biogas derived from brewery byproducts to produce electricity, or as a substitute for natural gas the brewery currently uses, will directly reduce the amount of fossil fuel that would otherwise be consumed. PurposeEnergy estimates that the Project will reduce Vermont's carbon footprint by over 2,900 metric tons of CO<sub>2</sub> per year. Fitch pf. at 11-12.

31. The Project will result in 2,875 square feet of new impervious surface. PurposeEnergy has obtained a State of Vermont Stormwater Discharge Permit for the Project. Runoff from the new impervious areas will be offset by the construction of a new grass swale. Fitch pf. at 5; exh. PE-MW-01; Wamsganz pf. at 3; exh. PE-MW-09.

32. The Project will reduce the BOD of effluent discharged from the brewery to the South Burlington wastewater treatment plant under the brewery's municipal wastewater discharge permits. Fitch pf. at 2; Wamsganz pf. at 2; exhs. PE-MW-07, PE-MW-08.

**Headwaters**

[10 V.S.A. § 6086(a)(1)(A)]

33. The Project is not located in a headwaters area. Wamsganz pf. at 3.

**Waste Disposal**

[10 V.S.A. § 6086(a)(1)(B)]

34. The Project will improve the brewery's current waste management practices by converting waste products that the brewery currently disposes of off-site to an organic soil amendment that PurposeEnergy will periodically transport to a local composting facility. Fitch pf. at 12-13.

**Water Conservation**

[10 V.S.A. § 6086(a)(1)(C)]

35. Construction and operation of the Project will use a minimal amount of water, and the Champlain Water District has approved a water allocation for the Project. Wamsganz pf. at 4; exh. PE-MW-10.

**Floodways**

[10 V.S.A. §§ 6086(a)(1)(D)]

36. The Project is not located in a floodway or floodway fringe. Wamsganz pf. at 3.

**Streams**

[10 V.S.A. §§ 6086(a)(1)(E)]

37. The Project site is not located near any streams and will not directly or indirectly impact any streams. Wamsganz pf. at 4.

**Shorelines**

[10 V.S.A. §§ 6086(a)(1)(F)]

38. The Project is not located on a shoreline. Wamsganz pf. at 4.



**Wetlands**

[10 V.S.A. § 6086(a)(1)(G)]

39. There are no wetlands or other water bodies near the Project site and the Project will have no direct or indirect impact on wetlands. Wamsganz pf. at 4.

**Sufficiency of Water and Burden on Existing Water Supply**

[10 V.S.A. §§ 6086(a)(2)&(3)]

40. Construction and operation of the Project will use a minimal amount of water, and the Champlain Water District has approved a water allocation for the Project. Wamsganz pf. at 4; exh. PE-MW-10.

41. The water source for construction and sanitary facilities is a one-inch water line that will be tapped off an existing eight-inch water line on the site, as approved by the Champlain Water District. There are no private wells in close proximity to the construction site. Wamsganz pf. at 4.

**Soil Erosion**

[10 V.S.A. § 6086(a)(4)]

42. The Project will not result in unreasonable soil erosion or reduction in the capacity of the land to hold water so that a dangerous or unhealthy condition may result. Total soil disturbance during construction will be approximately 10,500 square feet. A silt fence and stone check dam will be installed to contain any sediment in construction-site runoff. Wamsganz pf. at 3.

43. The Project will be constructed over an area that, for the most part, is already paved, and will result in the addition of 2,875 square feet of new impervious surface. Fitch pf. at 5.

**Transportation Systems**

[10 V.S.A. § 6086(a)(5)]

44. The Project will not cause unreasonable congestion or unsafe conditions with respect to transportation systems. This finding is supported by findings 45 and 46, below.

45. The Project will require a small amount of truck traffic during construction. Routine maintenance of the Project will require only one vehicle trip per day. The Project site is an area with roads capable of handling all Project-related traffic. Fitch pf. at 13.

46. PurposeEnergy anticipates that the Project will reduce truck traffic for the transport of brewery waste products from a current level of 3-4 trips per day (which would grow to 10-15 trips per day once the brewery expands to its maximum capacity) to only one trip per week (increasing to 3-4 trips when the brewery reaches maximum capacity). Fitch pf. at 13-14.

### **Educational Services**

[10 V.S.A. § 6086(a)(6)]

47. The Project will not unreasonably burden South Burlington's ability to provide educational services. The Project will permanently employ six people part-time (most likely drawn from the local workforce), which is likely to result in the enrollment of at most only a few additional students in South Burlington's schools. Fitch pf. at 14.

### **Municipal Services**

[10 V.S.A. § 6086(a)(7)]

48. The Project will not place an unreasonable burden on the ability of South Burlington to provide municipal or governmental services. This finding is supported by findings 49 and 50, below.

49. The Project will not require South Burlington to expand services related to fire and police protection, solid waste disposal, sewage treatment, water supply, rescue services, or road maintenance. The Project will, in fact, reduce the existing burden on municipal services by reducing brewery-related truck traffic on local roads and reducing the organic content of wastewater discharged from the brewery to the municipal sewage treatment plant. Fitch pf. at 2, 13-15; Hood pf. at 1.

50. The Project will not threaten public health or safety. The risk of fire is the most significant public safety issue associated with a facility such as the Project. The Project has been engineered to comply with or exceed the National Fire Protection Association 820: Standard for

Fire Protection in Wastewater Treatment and Collection Facilities. This standard encompasses building materials, facility layout, explosion-proof electrical equipment, and ventilation controls. The South Burlington Fire Chief has certified that the city can provide adequate fire protection for the Project. Fitch pf. at 14-15; exh. PE-MW-02 at 3.

**Aesthetics, Historic Sites**  
**and Rare and Irreplaceable Natural Areas**

[10 V.S.A. § 6086(a)(8)]

51. The Project will not have an undue adverse impact on the scenic or natural beauty of the area, aesthetics, historic sites, or rare and irreplaceable natural areas. This finding is supported by findings 52 through 57, below.

52. The Project will not have an undue adverse effect on scenic or natural beauty. The Project is aesthetically consistent with the densely developed commercial area in which it will be located. The tallest Project structures are the 34-foot primary biodigesters, which are shorter than the existing 42-foot grain silos on the Project site. The South Burlington Department of Planning and Zoning has determined that the Project will "relate[ ] harmoniously to . . . the terrain, and to the existing buildings and roads in the vicinity that have a visual relationship to the proposed structures." Fitch pf. at 15-16; exh. PE-MW-02 at 4.

53. The Project will be partially visible from Shelburne Road. PurposeEnergy will plant balsam fir trees as screening vegetation to minimize the view from Shelburne Road. Fitch pf. at 15-16.

54. The Project is designed according to, and will be operated in compliance with, South Burlington noise regulations applicable to the commercial area in which the Project will be located. These regulations require that the sound pressure level measured at any point on the boundary between the Project site and adjacent commercial properties to be less than 60 dBA. Fitch pf. at 16-17.

55. The Project will reduce offensive odors currently resulting from the brewery's practice of storing high-strength wastewater and spent grain in open-air containers. The Project will

instead utilize an anaerobic digestion system that requires air-tight containment of the substrate. Fitch pf. at 17-18.

56. The Project will not impact historic sites or archeological resources. Wamsganz pf. at 5; exh. PE-MW-11.

57. The Project will not have an undue adverse effect on rare or irreplaceable natural areas. Wamsganz pf. at 4.

### **Necessary Wildlife Habitat and Endangered Species**

[10 V.S.A. § 6086(a)(8)(A)]

58. The Project is located on an existing commercial site. There are no significant wildlife habitats or endangered species on the site. Wamsganz pf. at 5.

### **Development Affecting Public Investments**

[10 V.S.A. § 6086(a)(9)(K)]

59. The Project will not unnecessarily or unreasonably endanger any public or quasi-public investment in any government or public facilities, services, or lands, or materially jeopardize or interfere with the function, efficiency, or safety of the public's use or enjoyment of or access to such facilities, services or lands. Instead, the Project will reduce truck traffic on local roads and decrease the organic loading of wastewater discharged to the Bartlett Bay Wastewater Treatment Plant. Fitch pf. at 18.

### **Least-Cost Integrated Resource Plan**

[30 V.S.A. § 248(b)(6)]

60. PurposeEnergy does not distribute or transmit electricity for use by the public. Therefore, it is not obligated to prepare and submit for approval an integrated resource plan. *See*, Docket No. 7082, Order of 4/26/06 at 54.

**Compliance with Electric Energy Plan**

[30 V.S.A. § 248(b)(7)]

61. The Project is consistent with the 2005 Vermont Electric Plan. The Project is a step towards resource diversification and increased reliance on clean and stable energy sources, which are two important goals of the Vermont Electric Plan. *See*, Plan at 1-4, 10-20; Fitch pf. at 18.

62. The Department filed a determination, in a letter dated December 11, 2009, that the proposed project is consistent with the *Vermont Electric Plan*, in accordance with 30 V.S.A § 202(f).

**Outstanding Resource Waters**

[30 V.S.A. § 248(b)(8)]

63. The Project is not located on or near any outstanding resource waters. Wamsganz pf. at 3.

**Waste-to-Energy Facility**

[30 V.S.A. § 248(b)(9)]

64. The Project is not a waste-to-energy facility.

**Existing or Planned Transmission Facilities**

[30 V.S.A. § 248(b)(10)]

65. The Project can be served by existing distribution facilities without undue adverse effect on Vermont utilities or their customers. Crocket pf. at 3.

66. The Project will be interconnected at 12.5GrdY/7.2 kV with a GMP distribution system that originates at GMP's Queen City #32 substation. In addition, the Project may be served by Vermont Electric Power Company, Inc.'s ("VELCO") Shelburne #53 substation during outages of the GMP substation. The Queen City substation is supplied by two VELCO 115 kV lines. Exh. PE-DC-02 at 3-4.

67. PurposeEnergy will pay all costs of interconnection and any measures necessary to ensure that the Project does not disrupt system stability and reliability. The Project will have no cost impact on Vermont utilities or ratepayers. Fitch pf. at 19; Crocket pf. at 3.

### **III. CONCLUSION**

Based upon all of the above evidence, we conclude that the proposed construction will be of limited size and scope; the petition does not raise a significant issue with respect to the substantive criteria of 30 V.S.A. § 248; the public interest is satisfied by the procedures authorized by 30 V.S.A. § 248(j); and the proposed project will promote the general good of the state.

### **IV. ORDER**

IT IS HEREBY ORDERED, ADJUDGED AND DECREED by the Public Service Board of the State of Vermont ("Board") that:

1. The proposed Project, in accordance with the evidence and plans presented in this proceeding, will promote the general good of the State of Vermont in accordance with 30 V.S.A. Section 248, and a certificate of public good shall be issued in the matter, with the following conditions:

(a) Construction, operation and maintenance of the project shall be in accordance with the plans and evidence submitted in this proceeding.

(b) The Project shall comply with the conditions contained in the System Impact Study.

(c) The Project shall comply with the conditions contained in the July 21, 2009, Agency of Natural Resources letter determining that an air pollution control permit is not required for the Project.

2. The Certificate of Public Good accompanying this Order shall not be transferred without prior approval of the Board.

Dated at Montpelier, Vermont this 31<sup>st</sup> day of December, 2009.

<u>s/James Volz</u>	)	
	)	PUBLIC SERVICE
	)	
<u>s/David C. Coen</u>	)	BOARD
	)	
	)	OF VERMONT
<u>s/John D. Burke</u>	)	

OFFICE OF THE CLERK

FILED: December 31, 2009

ATTEST: s/Susan M. Hudson  
Clerk of the Board

*NOTICE TO READERS: This decision is subject to revision of technical errors. Readers are requested to notify the Clerk of the Board (by e-mail, telephone, or in writing) of any apparent errors, in order that any necessary corrections may be made. (E-mail address: psb.clerk@state.vt.us)*

*Appeal of this decision to the Supreme Court of Vermont must be filed with the Clerk of the Board within thirty days. Appeal will not stay the effect of this Order, absent further Order by this Board or appropriate action by the Supreme Court of Vermont. Motions for reconsideration or stay, if any, must be filed with the Clerk of the Board within ten days of the date of this decision and order.*